FIELD EVALUATIONS OF METHYL BROMIDE ALTERNATIVES FOR NURSERIES (AND REPLANTS)

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ABSTRACT

The Walnut Board partially funded an industry effort to field evaluate methyl bromide alternatives in nursery settings. As a result there are now two nursery trials underway with five and six replicated treatments each. The walnut nursery at UCD and peach nursery in Modesto now have enough funding to carry them to completion. During our search for nursery sites in northern California we came across several field situations where walnut orchards were being replanted. We initiated field evaluations in two of these replant sites during fall 1999 because we were aware new funding opportunities would come available through USDA-CREES grants if the walnut industry was interested.

OBJECTIVES

1. Evaluation of “most promising methods” for nursery settings.
2. Evaluation of “most promising methods” for replant orchards.

PROCEDURES

A text entitled “The Replant Problem and Its Management” details procedures we use to evaluate methyl bromide alternatives. That text indicates treatments exhibiting potential for nursery settings as well as orchard settings. Basically, we make treatments to soil and or the old trees, replant and then monitor tree growth and nematode development for the next two years or longer.

Objective 1 – Nurseries: This project was spawned by tree and vine nurserymen. The EPA, DPR, IAB and WMB provided through California Association of Nurserymen a total of $100,000 to specifically study alternatives to MB for nursery settings. M. V. McKenry was solicited to be the principal investigator and in turn Jim McKenna was hired part-time to develop the project. John Ivancovich of Tri Cal and Ron Snyder/Joanne Stuke were project coordinators/initiators of this effort. To meet Objective 1 two field sites were selected to be nursery sites. At UC Davis a walnut orchard had been removed in 1997. This Yolo silty clay loam soil was ripped to 5 ft depth and treated with five different fumigation treatments in September 1999. Walnut seed from six nurseries was contributed and planted across the replicated treatments in November 1999. Seeds in this nursery site will be sprouted and grown over two full years in a manner consistent with commercial practices.

A second nursery site was contributed by a nursery located near Modesto. This second site involves production of Lovell peach rootstock with replicated soil treatments similar to those at UCD but different field conditions. This site was planted to peach by November 1999.
Objective 2 – Walnut growers will feel the brunt of losing methyl bromide. Using the same textbook cited above and the fact that Jim McKenna was now hired to initiate studies in Northern California soils, two replant field studies were also initiated. Near Gridley, CA a walnut planting had been removed in 1997 and in October 1999 four different soil treatments, each having potential to perform, were installed in a replicated manner. This site will be planted to Howard/Paradox in spring 2000.

Near Rio Oso, CA a walnut orchard was irrigated just after harvest, trees cut down and immediately painted with Garlon herbicide and MorAct. During 2000 tree trunks will be pushed and this 8-acre site will receive various non methyl bromide treatments predicted to adequately reduce population levels of root lesion nematode in soil. Trees will be replanted in 2001.

RESULTS

Little can be reported except that the interest of the Walnut Board stimulated our field evaluations under this second objective. At the UC Davis site, which is actually two replicates of sandy loam and two replicates of clay loam, we already know that nematode control using Telone in silty clay loam soils was not dependable relative to nematode control across the surface 5 ft of soil. These findings can readily be associated with the inherent higher soil moisture content associated with clay loam soils during treatment. The other three sites have not yet received their first evaluations.

DISCUSSION

It is premature to discuss experimental results. This industry stimulated umbrella project is underway with adequate funding to see the two nursery sites of Objective 1 to fruition. Much more work is needed in nursery settings and walnut orchard settings. An opportunity for matching funds exists if the Walnut Board is interested.